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rections, and exerting an important influence on all the phenomena of terrestrial magnetism, both such as are general, and also such as appear to be local anomalies. The later researches of the author have satisfied him that the directions of these currents are probably much influenced by the geological structure of the globe; which would in most cases tend to give them more or less obliquity to the parallels of latitude. The author ascribes the diurnal changes in the direction and intensity of terrestrial magnetism to the successive action of the sun on the different portions of the surface of the globe. With reference to the causes that have determined the juxtaposition and arrangement of rocks in the interior of the earth, the author examines their comparative expansibility by heat. Granite, porphyritic feldspar, and clay-slate expanded from one-50th to one-77th by a red heat; while the expansion of serpentine, by the same heat, could not be rendered sensible. He concludes by calling in question the theory which ascribes the spheroidal form of the earth to its having been once a mass of plastic matter in igneous fusion or in aqueous solution.

May 17, 1832.

The Rev. WILLIAM BUCKLAND, D.D. Vice President,
in the Chair.

The reading of a Paper, entitled, "On Harriot's Astronomical Observations contained in his unpublished Manuscripts belonging to the Earl of Egremont," by Stephen Peter Rigaud, Esq. M.A. F.R.S. Savilian Professor of Astronomy in the University of Oxford,—was commenced.

May 24, 1832.

DAVIES GILBERT, Esq. D.C.L. Vice President, in the Chair.

The reading of Professor Rigaud's Paper was resumed and concluded.

In the Memoirs of the Royal and Imperial Academy of Brussels, for the year 1788, the Baron de Zach published a paper on the planet Uranus, in a note to which he states that, in the summer of 1784, he found in the library of Lord Egremont at Petworth, some old manuscripts of the celebrated Thomas Harriot, which he alleges afforded proofs that he had observed the solar spots, and the satellites of Jupiter before Galileo. In the Berlin Ephemeris for 1788, Baron Zach gave a full account of his alleged discovery, drawn up from Harriot's papers; an English translation of which was circulated in this country, and has been perpetuated by its being inserted in Dr. Hutton's Mathematical Dictionary. The author, having been entrusted by Lord Egremont with Harriot's original papers, has examined them with every attention he could apply to the subject, and gives in the present memoir the result of his inquiry.

The observations of Harriot on the spots on the sun, fill seventy-four half-sheets of foolscap, the first being dated December 8, 1610.

These papers are in good preservation : the writing is clear, and the drawings well-defined. Baron Zach says, that " he compared the corresponding ones with those observed by Galileo, and found betwixt them an exact agreement." This, the author shows, is very far from being the case, and he also brings evidence to prove that the discovery of the spots on the sun was made by Galileo at latest in the summer of the year 1610, and very probably in or before the month of July. He allows, however, that Harriot's observation in December of the same year, was the result of his own spontaneous curiosity.

The first observation made by Harriot of the satellites of Jupiter, has for date the 17th of October 1610. Those that follow, extend to the 26th of February 1612 : they are clearly written out on thirteen half-sheets of foolscap. But, even by the statement of Baron Zach, Galileo discovered them on the 7th of January 1610 ; that is, nearly eight months before Harriot.

The author has detected many other material inaccuracies in the account given to the world by Baron Zach of Harriot's observations. He concludes, however, by observing that Harriot ought not to be deprived of the credit which is justly due to him, because a greater share has by some persons been claimed for him than he is justly entitled to. He himself made no pretensions to priority in the discoveries in question.

May 31, 1832.

DAVIES GILBERT, Esq. D.C.L. Vice President, in the Chair.

The reading of a Paper, entitled, " On the Correction of a Pendulum for the reduction to a vacuum, together with Remarks on some Anomalies observed in Pendulum Experiments," by Francis Baily, Esq. F.R.S.,—was commenced.

June 7, 1832.

HIS ROYAL HIGHNESS THE DUKE OF SUSSEX, K.G.

President, in the Chair.

Lord Henry John Spencer Churchill ; the Hon. George Charles Agar, M.A. ; John Disney, Esq. ; James Clark, M.D. ; James Hope, M.D. ; the Venerable George Glover, M.A. ; Michael Thomas Sadler, Esq. M.P. ; Lieut. William Samuel Stratford, R.N. ; James David Forbes, Esq., and Howard Elphinstone, Esq. M.A., were elected Fellows of the Society. Baron Damoiseau of Paris, Professor de Blainville of Paris, Professor Carlini of Milan, Professor Cauchy of Paris, and Professor Tiedemann of Heidelberg, were elected Foreign Members of the Society.

The reading of Mr. Baily's Paper on the Pendulum, was resumed and concluded.

The author observes, that in all the experiments hitherto made with the pendulum, a very important correction, depending on the influence of the circumambient air, has been omitted ; and that the phi-